CONTENTS

1. Introduction

The *OSEK / VDX ActiveX control* implements the kernel awareness debugging of OSEK applications for Seehau software using Nohau's RTOS interface. This provides the debugging facility for OSEK applications running on Nohau`s Emul-12 PC (HC 12 processor family) emulator using Seehau software.

The *OSEK / VDX ActiveX control* analyzes the application specific information from the ORTI file and integrates with Seehau for the internal OSEK OS data to provide debugging facility for OSEK applications. The ActiveX control supports both the ORTI break and trace interface.

The ActiveX control is developed based on ORTI specification version 2.1 and Vector OS version 2.1.

In this document the *OSEK / VDX ActiveX Control* and *OSEK Control* are used as synonyms.

1.1 Document organization and format

This document is organized into sections.

Section 1 - Introduction - Provides an overview of the manual. This section of the Introduction summarizes the contents of the remaining sections and appendices. The remainder of this section presents an overview of *OSEK Control* and provides references to related documentation and technical support.

The following sections, if read sequentially, provide a step-by-step guide for debugging OSEK applications using Seehau with *OSEK Control*.

Section 2 - Software Installation - Describes the software and hardware necessary for successful installation and operation of the *OSEK Control*.

Section 3 – Getting started - Describes the steps to configure and use the *OSEK Control* for debugging the OSEK applications.

Section 4 – *OSEK Control* features - Describes the features related to OS Objects and Parameters that are available with *OSEK Control*.

1.2 Technical support

In U.S, technical support representatives are available to answer your questions. You may also fax or e-mail your questions to us. Please include your [voice] telephone number, for prompt assistance. Non-U.S. users may choose to contact their local representatives.

Phone: (248) 488-2080
Fax: (248) 488-2082
E-mail: techsupp@dgtech.com
Web site: http://www.dgtech.com

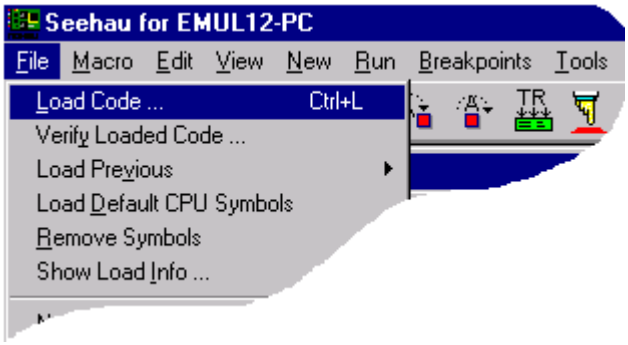
2 Software Installation

2.1 Installation Instructions

- Unzip the file "**OSEKRelease.zip**".
- Click on **Install.bat** that registers the "**OsekVdx Control**" ActiveX control.

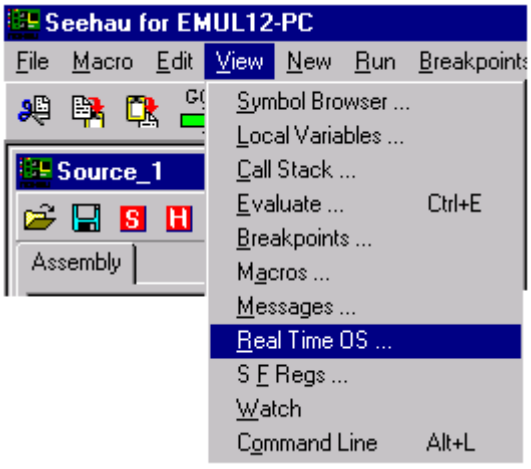
3 Getting started

- Make the necessary hardware connections for Seehau.
- Launch the Seehau application.
- Select "**File->Load Code…**" menu option from Seehau main window to load the required OSEK application.



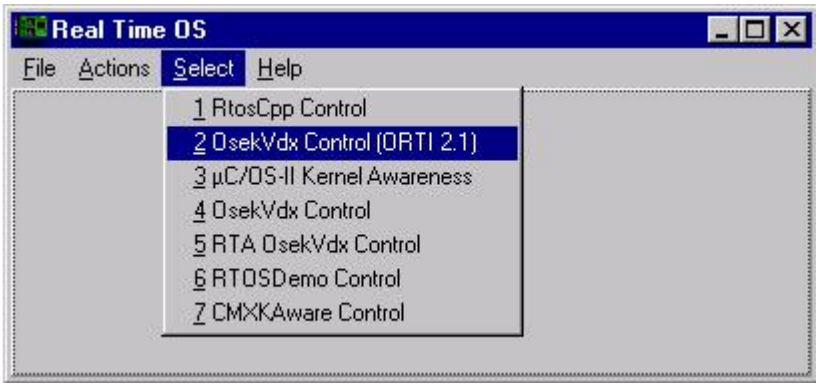
Screen No. 1 – Load code

- Open the RTOS window by selecting "**View->Real Time OS …**" menu option from the Seehau main window.



Screen No. 2 – Select Real Time OS

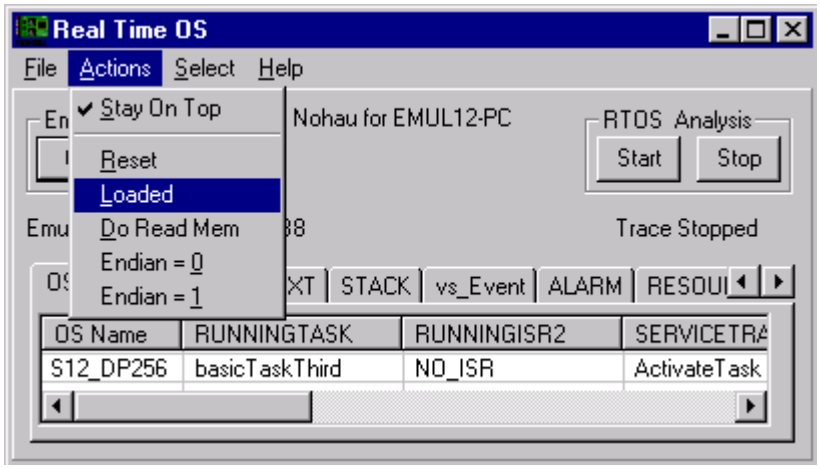
- Now, select "**Select-> OsekVdx Control (ORTI 2.1)**" menu option from the RTOS window to bring up the ***OsekVdx Control*** window



Screen No. 3 – Select OsekVdx Control

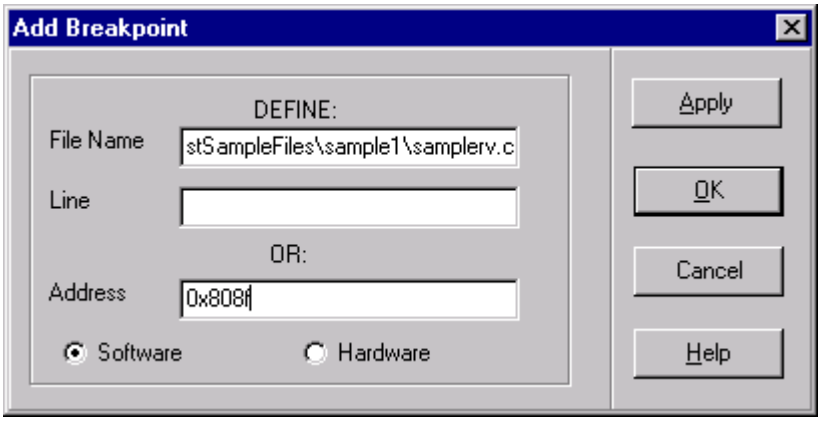
- If a code is loaded before opening RTOS window, then "**Action->Loaded**" menu option from the RTOS window should be selected.
- The OSEK / VDX ActiveX object will display all the objects and corresponding attribute details that are specified in the input ORTI file. Each Object will have dedicated window for displaying its specific attributes and the information.
- The static attribute details of each object will be updated when the emulator is stopped. The dynamic attribute details of each object will be updated when the trace is stopped.
- The user will be given with the options to start and stop the trace as well as emulator.

- From the RTOS window, select "**Actions->Loaded**" menu option. The static information present in the OSEK application is shown in the corresponding tabs.



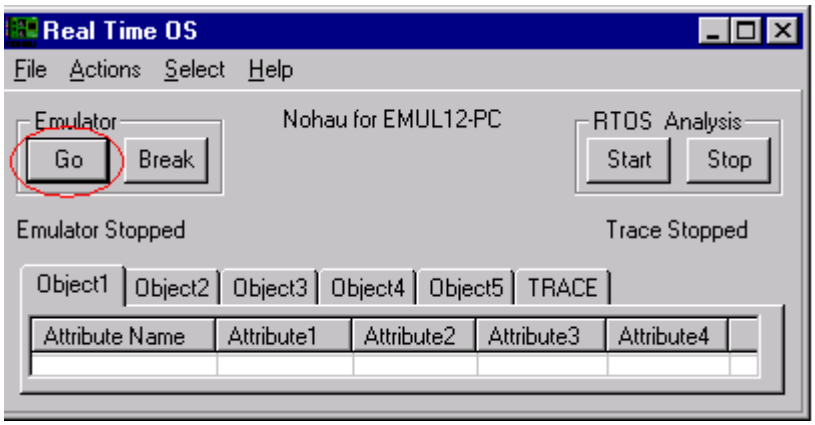
Screen No. 4 – Select Actions Loaded

- From the Seehau window select **"Breakpoints->Add Breakpoint"** to place the break point at the required address.



Screen No. 5 – Break point window

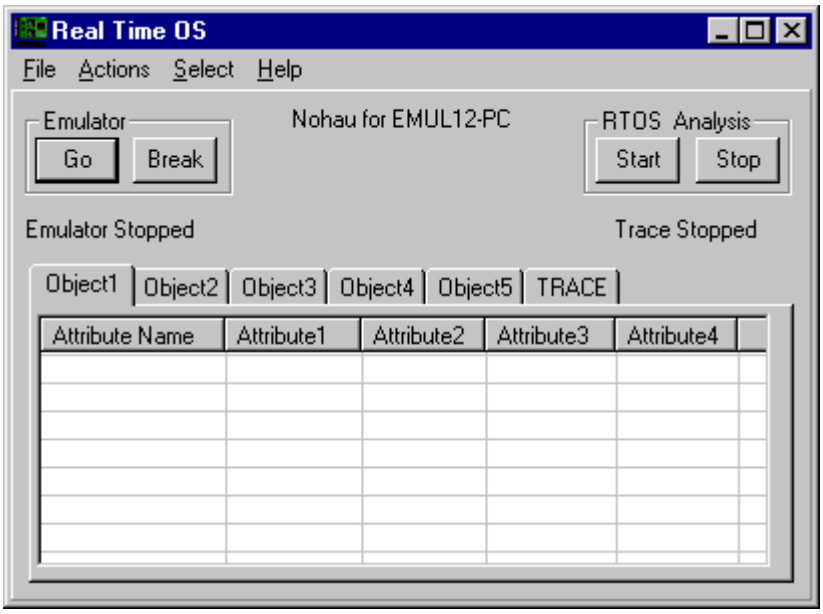
- Press "**Go**". Now, the RTOS window is updated with the trace and breakpoint interface data after it encounters breakpoint.



Screen No. 6 – Press GO

3.1 OSEK / VDX control main window

- Select **"Select–>OsekVdx Control"** from the RTOS window to display ***OSEK Control window***



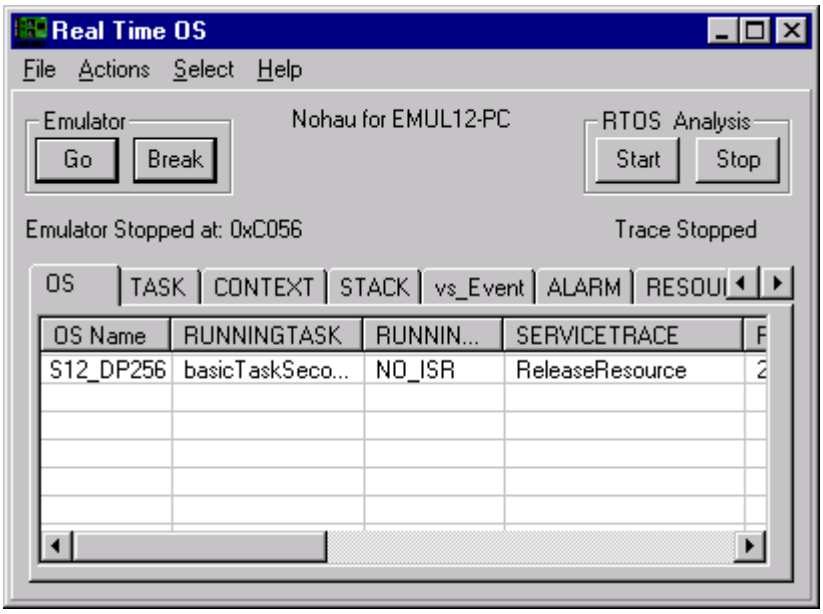
Screen No. 7 – OSEK / VDX Control window

- "Go" button is used to start the Emulation of the program code.
- "Break" button is used to stop the Emulation of the program code.
- "Start" button is used to record the selected data into trace buffer.
- "Stop" button is used to stop recording the trace data.
- Status of the emulator is displayed (started, stopped) on the RTOS window.
- The address, at which the emulation is stopped, displayed on the RTOS window.
- Status of the trace is displayed (started, stopped) on the RTOS window.

4 OSEK Control Features

Note: The following OSEK control features are described using a sample file as an example. The features described below are specific to the sample file.

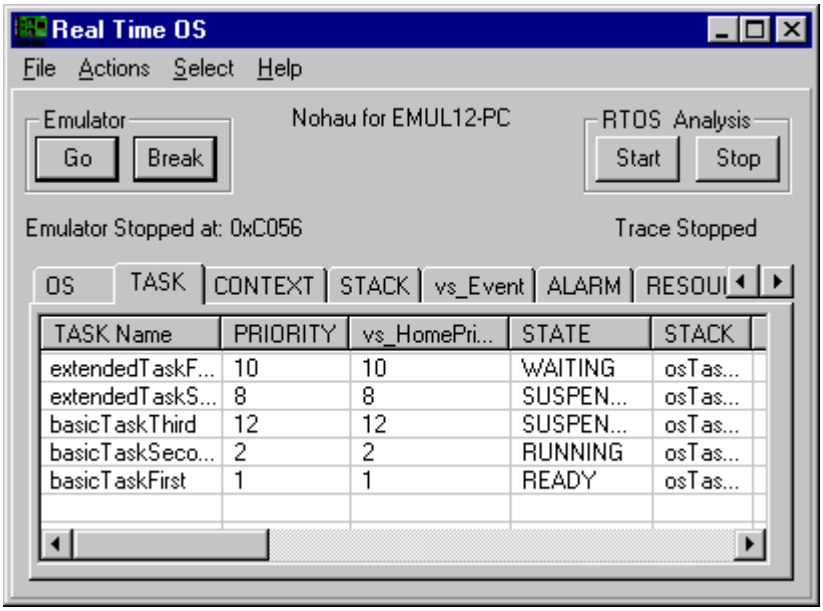
4.1 OS object Information



Screen No. 7a – OSEK / VDX OS Information window

- The OS tab displays the OS object information.
- The OS window displays the various OS object attributes like OS Name, RUNNINGTASK, RUNNINGISR, SERVICETRACE etc. that are defined for the OS object in the OSEK application.

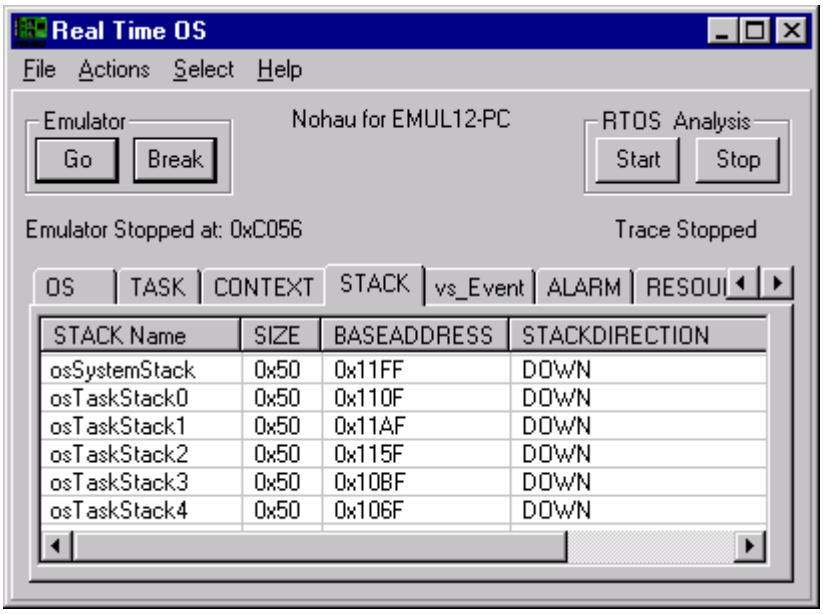
4.2 Task Information



Screen No. 8 – OSEK / VDX Task Information window

- The TASK tab displays the TASK object information.
- The TASK window displays the various TASK object attributes like TASK Name, PRIORITY, vs_HomePriority, STATE etc. that are defined for the TASK object in the OSEK application.

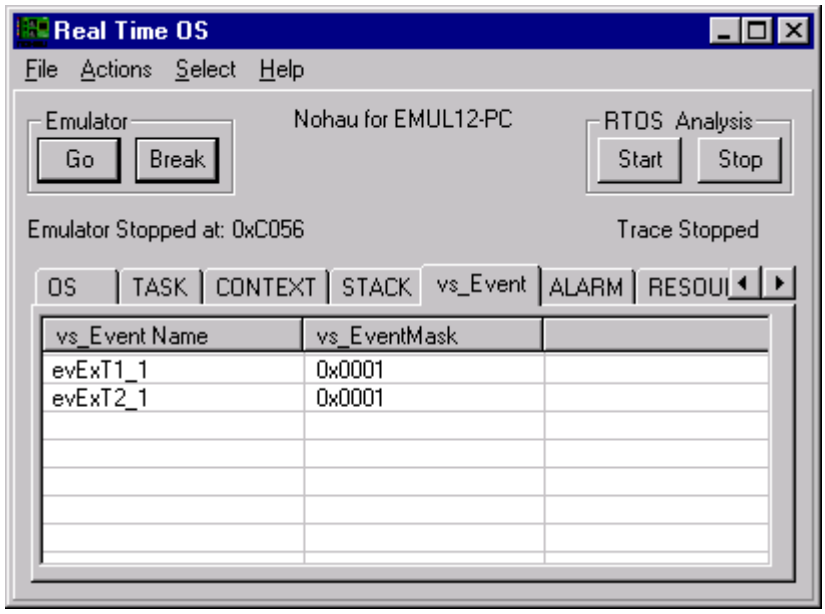
4.3 Stack Information



Screen No. 9 – OSEK / VDX Stack Information window

- The STACK tab displays the STACK object information.
- The STACK window displays the various STACK object attributes like STACK Name, SIZE, BASEADDRESS, STACKDIRECTION etc. that are defined for the STACK object in the OSEK application.

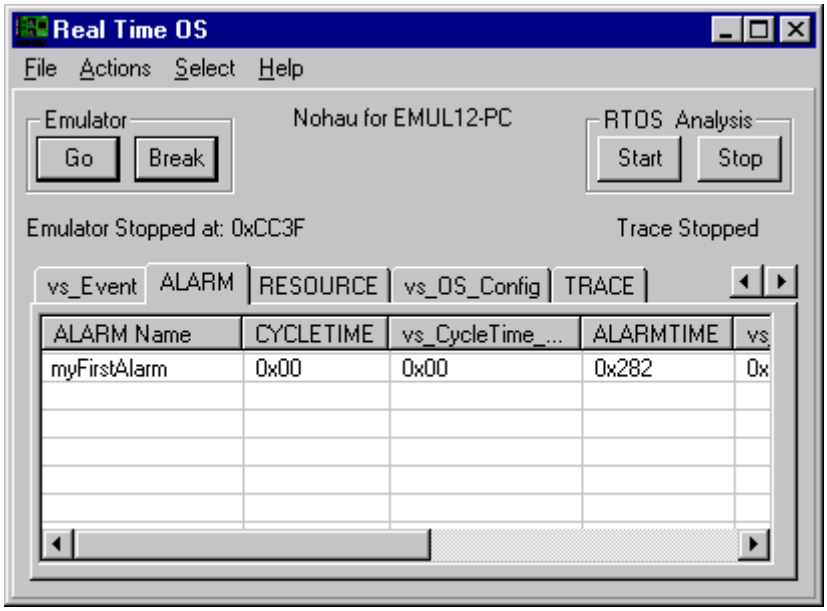
4.4 Vs_Event Information



Screen No. 11 – OSEK / VDX vs_Event information window

- The vs_Event tab displays the vs_Event object information.
- The vs_Event window displays the various vs_Event object attributes like vs_Event Name, vs_EventMask etc. that are defined for the vs_Event object in the OSEK application.

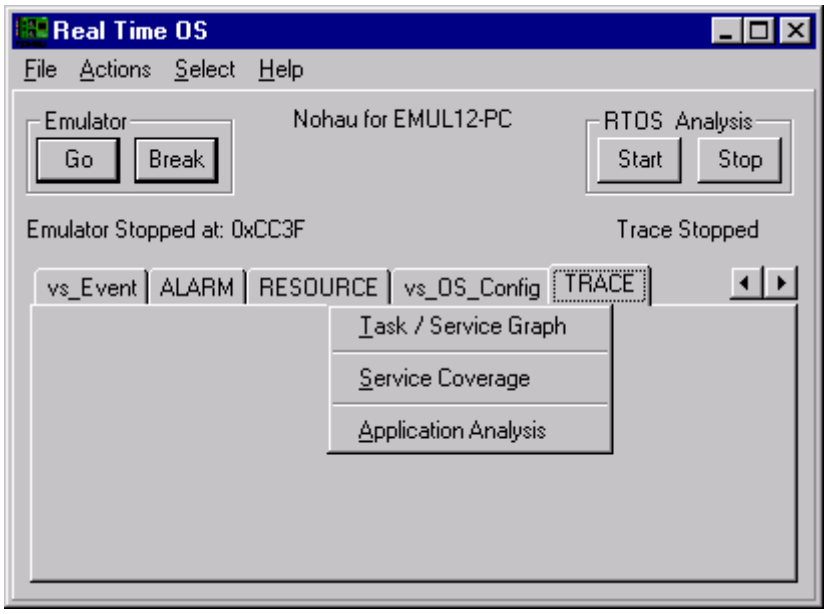
4.5 Alarm information



Screen No. 12 – OSEK / VDX Alarm information window

- The ALARM tab displays the ALARM object information.
- The ALARM window displays the various ALARM object attributes like ALARM Name, CYCLETIME, ALARMTIME etc. that are defined for the ALARM object in the OSEK application.

4.6 Trace Information

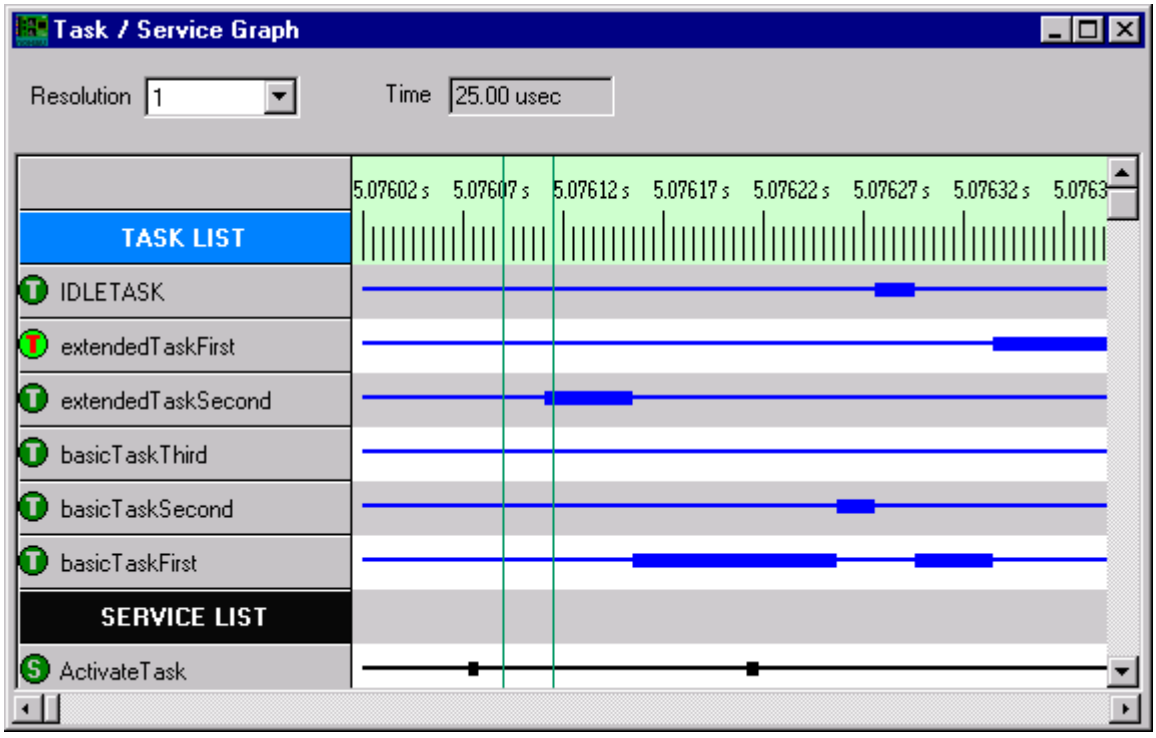


Screen No. 13 – OSEK / VDX Trace information window

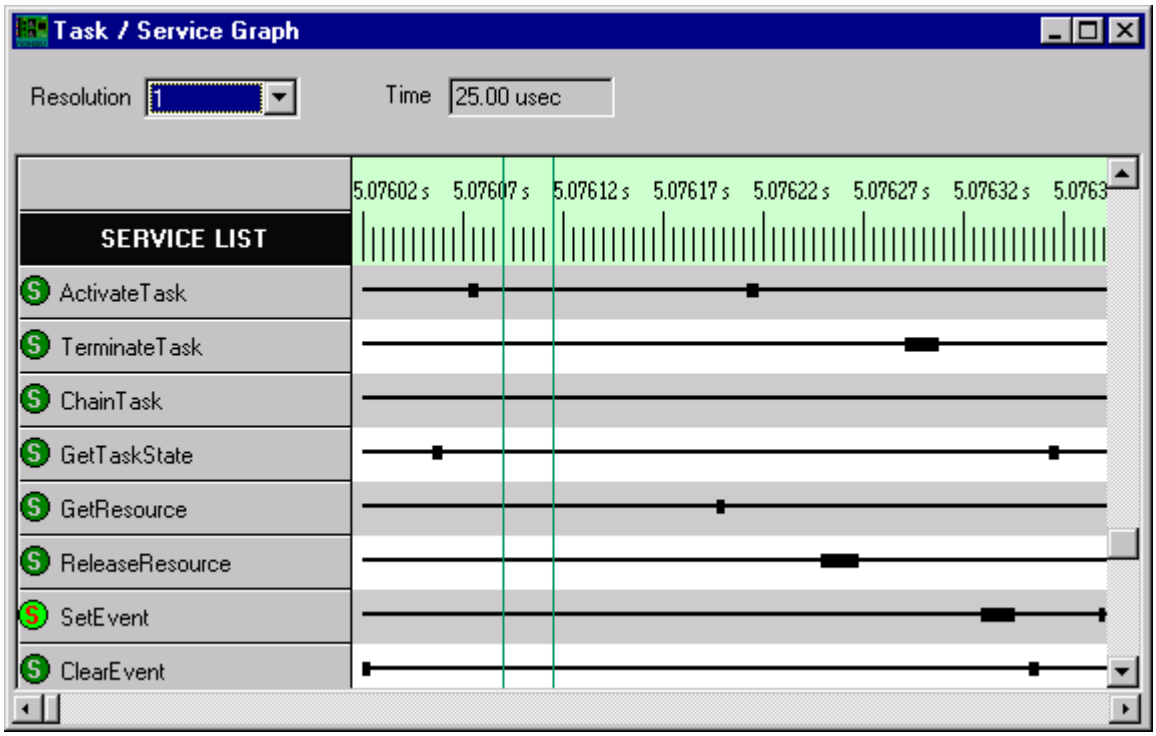
This module displays the graphical representation of the "**Task / Service Graph"**, **"Service coverage"** and **"Application Analysis"** of the OSEK / VDX application after the data has been recorded in the trace buffer.

Refer: Section [4.6], Screen No. 13

4.7 Task / Service graph



Screen No. 14 – OSEK / VDX Task/Service graph window showing the task information

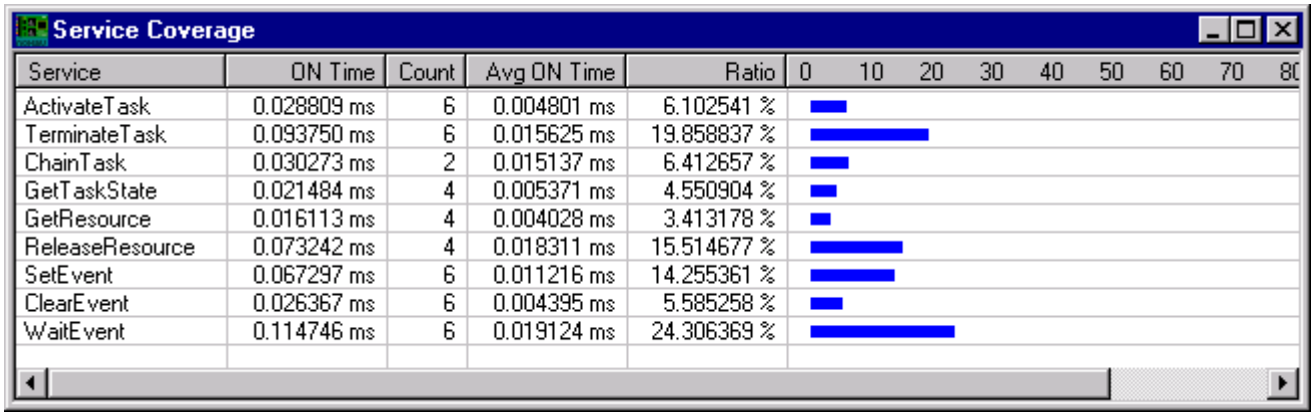


Screen No. 14a – OSEK / VDX Task/Service graph window showing the service information

The Task / Service graph window shows the graphical representation of task and service switching times. **Refer: Section [4.7], Screen Nos. 14 and 14a.**

- All the Tasks and Services (services that have become active during the trace data capture) are sown on the left hand side of the graph. The Tasks are represented with letter **"T"** and the services are represented with the letter **"S"**.
- The latest Task / Service that is ON (active) is shown with **green**.
- The **blue** color lines show the task switching and the **black** color lines show service switching timings
- Thick lines represent task / service ON (active) period
- Thin lines represent task OFF (inactive) period
- The cursors can be moved on the graph (by selecting and dragging with mouse) to measure the time difference. The **Time** text box displays the exact time difference between the cursors.
- The **Resolution** selection box can be used to set the resolution for time scale at x1, x10, x100 and x1000 factors to scale the display.

4.8 Service coverage



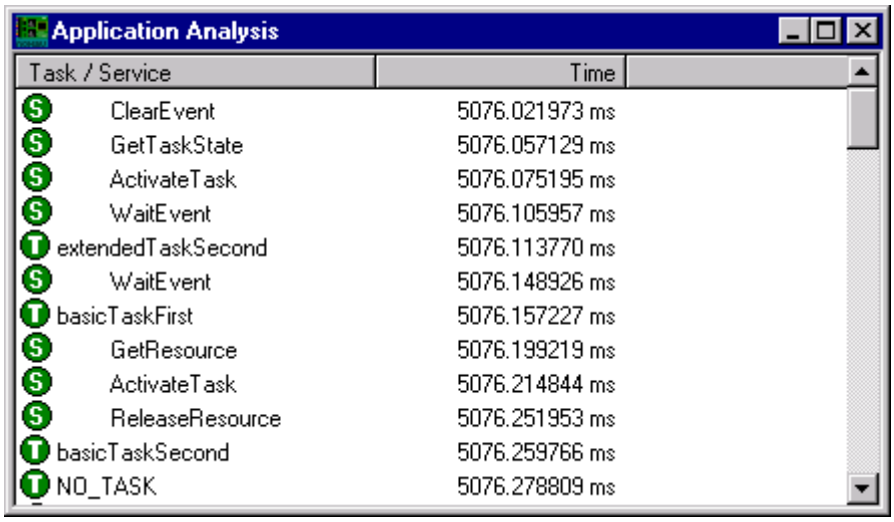
Screen No. 15 – OSEK / VDX Service coverage window

The **Service Coverage** window shows the following statistics of the services

- The total ON time of a service.
- The count, which shows number of times each service became active.
- The average ON time of a service.
- Graphical representation of the percentage average ON time.

Refer: Section [4.8], Screen No. 15

4.9 Application Analysis



Screen No. 16 – OSEK / VDX Application Analysis window

The Application Analysis window shows the application snapshot in the text format. Application Analysis window includes the following parameters

- Task / Service
- Time